A Practical Guide

for

General Surgical Management

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by

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DEDICATED WITH LOVE TO THE MEMORY OF
BEATRICE STERLING HOLLANDER, M D ,
AND
HELEN ULLMAN SHAFFER

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FOREWORD

This practical guide has been assembled for routine use by interns and residents at the Albert Einstein Medical Center at Philadelphia As the various sections were amplified and put into daily use, it appeared to Dr Sterling and his colleagues that such an outline might be of use for various surgical services in other hospitals

It must be stressed that this represents the methods which they have adopted No attempt has been made to present the many variations in practice which are followed in other clinics Since the methods presented in this text are sound in principle, the book will serve as an excellent guide for those hospitals which do not have a similar outline

Procedures for guidance of the intern in the preparation and final disposition of records are most important if a hospital intends to meet the requirements for accreditation The routine as formulated in this text meets the highest standards

Methods and technics that have proved to be of value as the result of experience are worthy of trial, and upon reading this little book one may find that some change of what has hitherto been standard will be in order

This text will serve as an excellent quick reference for and guide to the essential features of pre- and postoperative care in the usual major operative procedures I consider these methods entirely proper to follow unless the intern or the resident is directed to do otherwise by his senior attending surgeon Ideas that at first appear somewhat contrary to one s own opinion and practice will often be found quite acceptable

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Professor of Surgery and
Chairman Department of Surgery,
The Graduate School of Medicine
University of Pennsylvania
Philadelphia
December, 1958

PREFACE

This *Practical Guide for General Surgical Management* has been written for reference by the interns and the residents assigned to the Surgical Ward Service of a hospital It is intended to orient to his responsibilities each member of the team who cares for patients with surgical problems The statements here however, do not obviate the need for art, skill, science, brains, common sense, and "consideration"

Details relating to genito-urinary surgery, maxillofacial surgery, neurosurgery, orthopedic surgery, and thoracic surgery have purposely not been emphasized

The text, divided into four major sections, has been numbered throughout with conventional outline series major sections I-IV, each section divided into parts A, B, C, etc, with further subdivisions beginning 1, *a*, (1), and (*a*) It is hoped that this will facilitate quick reference for those using the *Guide* thus, for example, reference to closing the appendiceal stump during an appendectomy can be cited as "III B 2*c*

Participating in the preparation of this book have been Drs L Block, H Cantor, E Cohen, R Goldsmith, S Levine, and J Zaslow

JULIAN A STERLING, M D

E Outlines for Dictating Reports

1 Operative Procedure

a) Name of surgeon and assistants
b) Patient s full name and location
c) Date of operation and approximate duration
d) Type of anesthesia and name of anesthetist
e) Operative findings with details
f) Operative procedure
g) Diagnosis
h) Name of operation
i) Status at conclusion of operation (Note blood loss and blood or fluid replacement)
j) Other significant details

2 Discharge Summary (Letter), in the Event of Operative Procedure

a) The referring physician s name in full, (or the senior attending on other ward services, or the physician in charge of the out-patient department)
b) First paragraph
   (1) Patient s name (spelled right!) and location
   (2) Hospital record number
   (3) Admission (the date of transfer to Surgical Service) and discharge dates
c) Second paragraph
   (1) Chief complaint
   (2) Facts from history of present illness
   (3) Facts from past medical history
   (4) Facts from physical examination
   (5) Conclusions from X-ray cardiogram, and similar studies
   (6) Reports of consultations
d) Third paragraph
   (1) Name of operation, date performed and operative findings

5 Problems—such as inefficiency of attendants, errors in patient care, deficiencies among interns or residents, and similar situations—will be discussed privately with the Chief of Service before necessary action is taken

6 All consultations will be referred to the Chief of Service, who will assign the consultant Consultation reports are to be written in duplicate and a copy placed in the mailbox of the Chief of Service Personal consultation with the referring attending staff is encouraged

C Operating Time

1 Operating schedules on the service will be co ordinated with the surgeon in charge of ward services for the month

2 The resident and interns assigned to the Surgical Service are to be available in the operating suite at least 12 minutes before the scheduled time for the operation It is the responsibility of the surgeon in charge of ward services to see that assistants and instruments are available for expected surgery

D Patient Status (See also Section IV A)

1 Unassigned semi private patients (including public liability cases) are admitted to the semi private service of the surgeon in charge of the wards, unless other provisions are specified

2 The surgeon in charge of ward service is to be notified about admissions and expected admissions

3 New admissions are to be examined by the intern as soon as possible, in order to provide for adequate management In the event of unavoidable delay, the resident and the attending staff will be notified by the intern

4 All changes in status of patients (including death) are to be reported to the ward surgeon

5 Death certificates are not to be signed if there is no authorization for autopsy, except with the approval of the Chief of Service

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(2) Pathologist's diagnosis
(3) Hospital course, management, and complications
(4) Prognosis (or autopsy findings)
(5) Discharge medications or instructions
(6) Date for follow up examination

e) A concluding statement to indicate that additional explana
tion should be requested if needed

Dictated by

II General Procedure

A Checklist for Preoperative Care

1 HISTORY Notes pertinent to the major complaint, with additional notes concerning claudication, cough, dyspnea, dysuria, or straining at stool History of allergies, antihypertensive drugs, and cortisone administration will be specifically noted

2 PHYSICAL EXAMINATION To include the usual observations, supplemented by notes regarding state of skin in proposed operative area

3 LABORATORY STUDIES Routine examinations to include CBC, urinalysis, and prothrombin time, and others as indicated

4 DIET (excluding gastrointestinal tract) For operative procedure scheduled in the morning, food of the regular diet may be eaten until 6 P M the preceding night Liquids thereafter Nothing orally during the eight hours preceding the scheduled operation

5 ENEMA Not given when patient has normal bowel habits When constipation exists, enemata are not contraindicated

6 MEDICATION *a*) Adequate sedation is given the night before the operation and is to include a short-acting barbiturate with or without a nonbarbiturate hypnotic

b) Tranquilizing medication may be given

c) Phenobarbital, gr ii (or Nembutal gr iss), administered by injection approximately two hours preceding scheduled surgery

d) Opiate (or substitute) and atropine (or scopolamine) are

administered, proportionate to the patient's weight and age, on call to the operating room (Opiate may be omitted in the absence of pain)

e) Other medications—as for the patient with glaucoma, the alcoholic, the diabetic, the extremely apprehensive person, the infant and the aged—are to be modified individually

f) Antibiotics are used only if indicated

g) If cortisone has been given during the previous year, the proper amount of steroid should be administered by oral or injection therapy

h) Any history of cortisone administration, drug hypersensitivity, or any allergy is to be noted on the *front* of the chart

7 LOCAL PREPARATION a) This includes a dry shave followed by soap or a Phisohex (or Septisol) washing

b) Preparation of area for surgery should be carefully indicated

c) When possible each patient should have a complete bath preceding operation

NOTE The implementation of this preoperative checklist is the responsibility of the surgical resident

B Checklist for Postoperative Care

1 POSTANESTHESIA PRECAUTIONS *a*) Blood pressure, pulse, and respiration rates recorded at specified intervals

b) Oxygen (nasal catheter or tent) for hypertension or hypotension beyond the limits indicated for each patient

c) Restrictions in position and activities if spinal anesthesia has been used for period suggested by the anesthesiologist Other restrictions as they apply to the specific operation

d) Special instructions for rewarming or for blood pressure maintenance when hypothermic or hypotensive anesthesias have been used

2 FLUIDS *a*) *Oral* If there is no objection, start with "water," then clear fluids, then any fluids excluding milk', then add

milk, then special items of diet, if these are needed, then progress to "soft," 'house," or 'special" diets after 24 hours

b) *Parenteral* Not to exceed 3,500 cc daily unless more is advised by the consultant or the Chief of Service At least 1 liter of normal saline or its equivalent is to be given in each 24 hour period In the event that renal output is less than 500 cc daily, special instructions will pertain Output and intake records should be kept for each patient who has a gastrointestinal tube or who will require parenteral therapy beyond 24 hours (When laboratory studies are indicated, see 9, below) Blood transfusions are administered to replace blood loss

3 MEDICATION *a*) For *restlessness* give barbiturates, and occasionally the ataraxic compounds at 6- to 8 hour intervals

b) For *pain* give narcotics, demerol, morphine, or their equivalents Intravenous alcohol and local nerve blocks may be indicated

c) For *nausea*, antiemetics may be used, but not beyond 36 hours Tranquilizing medication should not be used routinely, and not ever beyond a single dose

d) Cortisone, prostigmine, insulin antiemetics laxatives, vasodilators or other medicines will be continued if indicated

e) Dosage equivalents

1/320	gr	=	2	mgm
1/100	gr	=	6	mgm
1/64	gr	=	1	mgm
1/8	gr	=	8	mgm
1	gr	=	65	mgm

4 GASTROINTESTINAL PROBLEMS *a*) Nausea may be treated during the first 36 hours with antiemetics Recurrent nausea and vomiting call for gastric intubation

b) Intubation is not utilized in most simple cholecystectomies and appendectomies Repeated postoperative vomiting is an absolute indication for the passage of a gastrointestinal tube Use of a long intestinal tube requires special instructions, and is to be individualized, with X-ray assistance when indicated

c) Rectal tubes may be used as indicated Glycerin supposi-

administered, proportionate to the patient's weight and age, on call to the operating room (Opiate may be omitted in the absence of pain)

e) Other medications—as for the patient with glaucoma, the alcoholic the diabetic, the extremely apprehensive person, the infant and the aged—are to be modified individually

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g) If cortisone has been given during the previous year, the proper amount of steroid should be administered by oral or injection therapy

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2 FLUIDS *a*) *Oral* If there is no objection start with water,' then clear fluids, ' then any fluids, excluding milk , then add

drainage specimens are sent for special laboratory examinations)

b) Drains may be removed after the third postoperative day if dressings are dry Tubes and drains are to be marked clearly to prohibit such errors as giving a jejunostomy feeding through a thoracotomy drainage tube

9 LABORATORY DETERMINATIONS *a*) Patients who had blood loss, with or without replacement, should have a "stat" determination of hemoglobin and a hematocrit taken 6 hours postoperatively Subsequent studies (including blood volume determinations) depend on the patient's progress

b) Patients who require electrolyte management determinations of or blood count and chemistry (CO_2 and Urea) are to be tested within the first 48 hours Subsequent studies, including those for potassium, sodium, and proteins, are made as indicated

c) X-ray examinations are done in chest cases within the first 24 hours and, in all abdominal cases in which a long intestinal tube is used, at intervals in accordance with the patient's problems

10 PULMONARY, CARDIAC AND OTHER THORACIC PROBLEMS

a) Keep the airway clear

b) In case of a cough, tracheal aspiration and bronchoscopy may be needed

c) Chest drainage bottles must be working at negative pressure

d) Trendelenberg position is to be avoided

e) Intravenous fluids are to be held at a minimum

f) Nasal-catheter oxygen is to be continued until respiratory exchange is normal

g) In the event of continued bleeding during or following cardiovascular or any prolonged procedure, these should be completed for diagnosis

(1) Blood volume
(2) Platelets
(3) Prothrombin time and prothrombin-consumption time
(4) Calcium
(5) Fibrinogen

tories should be given each day after the second postoperative day There is no objection to the use of saline enemas after the third postoperative day When the patient is retaining fluids and is ambulatory there is no objection to the use of 1 dram to 1 ounce of milk of magnesia, supplemented by 1 or 2 ounces of mineral oil once or twice a day

5 BLADDER CARE Catheterization should be performed as needed and without delay In the event that repeated catheterization is needed, an indwelling catheter should be inserted, consultation requested, and a urinary antiseptic prescribed

6 PATIENT ACTIVITY *a*) Specific instructions regarding ac tivities deep breathing exercises, motion of feet and extremities, turning from side to side, foot-dangling use of an abdominal binder—and when the patient is to be out of bed are to be given by the surgeon at time of his rounds

b) Ace bandages or elastic stockings should be used particularly if the patient has phlebitis or varicose veins A foot box can be used

c) Patients who have recovered from the effects of a surgical operation will participate in a program to prevent deconditioning (see C, below)

7 AMBULATION *a*) Unless contraindicated, an abdominal binder is applied following abdominal operations

b) Patients are to dangle their feet within 12 hours after the operation They may be out of bed, stand walk, and sit in a chair at the bedside unless these activities are contraindicated within 18 hours of operation

c) If it is feasible, and in the event that abnormal drainage is absent, the patient may wear a two-way-stretch garment

8 DRAINS AND DRAINAGE TUBES *a*) Specific instructions are to be noted with regard to the care and attachment of drainage tubes, the measurement of drainages, and their disposal (Bile-

capacity Specific limitations, such as 'avoid abdominal" or 'avoid upper limb," can be prescribed General exercises such as those for patients in the "Yellow" category are given, but away from the bedside Group participation is encouraged, and the patients are encouraged to direct one another in these activities

3 CONSULTATIONS Requests for physical therapy "to prevent deconditioning' are to be forwarded to the Physiotherapy Department when the patient is placed in the 'Yellow" or the 'Green" category, and when 'specific remedial therapy" is desirable

D Discharge Instructions for the Patient (Following Abdominal Surgery, Including Hernia)

1 ABLUTIONS Shampoo at any time Sponge bath for 10 days Stall shower for the next 10 days, if incision has healed Tub bath after 3 postoperative weeks

2 ACTIVITY The patient may walk any distance on a level, may be outside if the weather is suitable, and may ride in a car He can climb stairs, but he is not to walk up, then down, at one time Intervals between stair-climbing may be decreased after three weeks The patient is to be instructed not to push or pull, or to lift articles that stick and resist movement

3 GARMENTS *a*) A garment, such as a two-way-stretch, may be worn for a period of six months

b) A dressing may be worn over the incision if the incision is sensitive

4 DIET AND GASTROINTESTINAL TRACT *a*) Diet is outlined with reference to the abdominal complaint and the operative procedure

b) Glycerin suppositories or simple enemata may be used

c) For biliary-tract patients, phospho soda should be prescribed to be taken once each week for a period of 6 weeks

h) Aspiration of pleural and pericardial spaces should be done, as frequently as is needed with exquisite care

11 The postoperative checklist will not be useful when written on paper, it needs personal supervisory attention

C Convalescence

1 Patient Activity Patients on the Surgical Ward Service are to be classified with regard to physical activities Ordinarily the categories are—

a) Bed rest
b) Dangle
c) Chair to bathroom
d) Bathroom privileges
e) Ambulatory

One of these or a similar statement will suffice for patients who are preoperative not yet diagnosed or of short-term hospitalization status All other patients should have supervision to prevent physical and mental deconditioning Patients therefore will be classified into Red,' 'Yellow' and Green' categories, which will be indicated on their charts and their bedside cards

2 Categories of Convalescent Patients *a*) *"Red"* Patients who are too ill or for whom physical activity is otherwise not indicated These patients will not participate in the program *to prevent deconditioning"*

b) *'Yellow* Patients who are restricted in activities and who are generally confined to bed General exercises (1) breathing, (2) upper extremity and shoulder girdle, (3) lower extremity and hip, (4) back and abdominal, and (5) neck. These are "active' rather than 'passive" exercises If it is indicated, the Physiotherapy Department may eliminate or implement specific remedial or passive exercises

c) *'Green* Patients who have reasonably unrestricted physical

capacity Specific limitations, such as "avoid abdominal" or "avoid upper limb," can be prescribed General exercises such as those for patients in the "Yellow" category are given, but away from the bedside Group participation is encouraged, and the patients are encouraged to direct one another in these activities

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5 Follow-up An appointment to the Follow-up Clinic is made for the patient (2 P M on the first Tuesday occurring 3 months after discharge)

E Sutures' Technics

1 Generally, use catgut, silk, Dermalon, and braided wire (00 and 000)

2 Laparotomy

a) *Catgut*

(1) Superficial ties and ligatures plain 000

(2) Deep ties and ligatures chromic 000

(3) Peritoneum chromic 0

b) *Dermalon*

(1) Skin 000

(2) Vertical mattress" (or "thru-thru") tension sutures 3

c) *Braided wire*

(1) Posterior inguinal canal wall 0

(2) Interrupted (in place of interrupted chromic for fascia) 000

d) For *infants and children* smaller sizes than those indicated above

3 Specific Exceptions

a) *Gastrointestinal anastomoses*

(1) Serosal sutures (interrupted) silk, atraumatic, 000

(2) Mucosal and other portions of the anastomosis, including angle sutures catgut 000

b) *Major and other pedicle ligature* such as—

(1) Cystic artery and duct silk 00, or 000 for double ligation (or one chromic 000 and one silk 00 or 000)

(2) Gastric, colonic, or other intestinal arcades at least one silk 000 ligature

(3) Thyroid pedicles at least one silk 00 or 000 ligature

c) *Appendectomy* silk 000 purse string (or Parker-Kerr) for inversion without ligation (see Section III B, below)

d) *Skin grafts*

(1) Ties over pressure-stent silk 00 or chromic 00

(2) Approximation of tissues silk 0000, or—

(3) Catgut 0000

4 Other exceptions apply to procedures for specific operations These are given in detail in Section III, following

III Basic Care in Specific Operations

A Acute Abdomen

1 CLINICAL *a*) Take the usual careful anamnesis Include liaison with referring doctor and reference to other hospital admissions

b) Pelvic and rectal examinations are not to be deferred A sigmoidoscopy will be made unless contraindicated and undesirable The presence of femoral pulses and the status of the inguinal rings are to be noted

c) Complete X-ray examination of abdomen includes (1) erect, (2) dorsal recumbent, (3) lateral recumbent, and (4) chest To be done when indicated, not done if other X-ray studies are planned

d) Take an electrocardiogram, when indicated

2 LABORATORY *a*) Complete blood count and urinalysis Include repeat studies if required

b) Enzymes (upper abdominal or undiagnosed pain), serum amylase, S G O T

c) Prothrombin time and blood sugar

d) Specific electrolyte ' stat (CL, CO_2 and UN) when loss of fluids has occurred K, Na, and proteins to be done later, if indicated

e) Requests for stat data must have rationale

3 MANAGEMENT *a*) Utilize gastric or long intestinal intubation as indicated

b) Keep accurate intake-output records

c) Immediate restoration of blood, water, fluids and electrolytes will be started even before diagnosis is established

prothrombin time taken Two units of blood are to be available in the operating room X-ray examinations of the breast and chest are done in these patients, X-rays of skull and bones, if indicated

d) *Psychological* Each patient is to be prepared for possible removal of the breast This should be done tactfully, indicating that in some situations it is essential so as to remove "diseased tissues" In the event that permission is not given for complete removal of the breast (if this should be indicated), the Chief of Service is to be notified No arguments

e) The chemotherapy section of the Tumor Board should be advised prior to the operation, about the possibility of malignancy

2 OPERATIVE *a*) All patients with tumor in the breast are to be considered for radical mastectomy, except those who have evidence of generalized metastases, with fixation of the original lesion to skin or fascia, with ulceration, or with fixation of nodes in the axilla Operations in these patients should not be undertaken without consultation

b) Rodman (longitudinal) or Stewart-Lee (transverse) incisions are preferred

c) Contralateral thigh is to be prepared for possible skin graft in some patients

3 POSTOPERATIVE *a*) The use of a suction (Stedman) pump may be required if polyethylene or rubber catheters are placed under the flaps

b) Patients who have positive axillary nodes will be given a course of cobalt therapy Consultation with the Radiotherapy Department is to be undertaken Radiotherapy for patients who have already received chemotherapy will be delayed for approximately six weeks and blood counts taken as requested by the Radiotherapy Department

c) Menopausal patients should have hormone-excretion studies Decision is to be made individually regarding sterilization therapy or oophorectomy

d) Pre menopause patients should have castration therapy

d) Penicillin and streptomycin are given in the presence of fever toxicity, or sepsis, unless contraindicated

e) Consultation with other services may be advantageous

✓B Appendicitis

1 The following information is included over and above the usual preoperative record

a) Date and hour of onset of symptoms
b) When was a physician first consulted?
c) Any previous attacks or symptoms?
d) Was a laxative taken or an enema given?
e) Were antibiotics administered?

2 Operative Procedure *a*) Transverse or McBurney incision with muscle splitting approach

b) Exploration should exclude pelvic disease, mesenteric adenitis Meckel s diverticulitis and diseases of the urachus, omentum and epiploic appendages, except in presence of perforation

c) Appendiceal stump will be closed by inversion without ligation using fine silk purse string or Parker Kerr technique Adequate appendiceal mesentery may be included in third knot of the ligature

d) Drains are used in treatment of abscess A subcutaneous drain is placed when one is in doubt

✓C Breast Tumor

1 Clinical *a*) The history is to include parity, menstrual history pelvic disease family history of malignancy, and whether the patient was nursed or nursed her children

b) Physical examination should be accompanied by diagrams indicating location and size (in cm) of primary lesion and axillary metastases Pelvic examination is made and recorded

c) Laboratory examinations include those indicated by the individual patient's status Platelet counts should be made, and

prothrombin time taken Two units of blood are to be available in the operating room X-ray examinations of the breast and chest are done in these patients, X-rays of skull and bones, if indicated

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b) Physical examination should be accompanied by diagrams indicating location and size (in cm) of primary lesion and axillary metastases Pelvic examination is made and recorded

c) Laboratory examinations include those indicated by the individual patient s status Platelet counts should be made, and

left sided lesions, rectal sphincterotomy is done following colon anastomoses

3 POSTOPERATIVE *a*) Avoid antibiotics, unless absolutely indicated

b) Early ambulation

c) Rectal sphincter dilation on the second or third day Rectal tube may be useful No enemata

d) Do not remove sutures too soon

e) Pass Levine tube, if indicated, in addition to the long intestinal tube These remain during the period of gastrointestinal readjustment, and are removed after normal bowel movement Individualize

f) Follow-up examinations at six months and one year If malignant, repeat annually

E Gall-Bladder Disease

1 PREOPERATIVE Individual management will establish diagnosis (X-ray) and evaluate liver, intestinal, cardiovascular, renal, peripherovascular, and central nervous systems Restore normal physiology prior to elective surgery

a) Extrabiliary-tract sources for pain are to be excluded Phenobarbital and papaverine in adequate dosage should be used Narcotics may supplement these

b) Severe gall-bladder infection is treated by penicillin and streptomycin Erythromycin is used when pancreatic involvement is suspected

c) Electrolyte imbalance is to be compensated preoperatively In the presence of a bile fistula, it is essential to compensate for potassium and nitrogen loss Preoperative diet should be a low-cholesterol low fat diet with high protein and high-caloric supplements Vitamins, including B_1 are given

2 LABORATORY STUDIES Include prothrombin time serum bilirubin serum proteins (A G ratio), cephalin flocculation, lipase S G O T (S G P T), sedimentation rate, and cross and

Should the patient not want surgical procedure, the Radiotherapy Department will be notified and castration radiotherapy administered following chemotherapy after an interval of approximately 6 weeks

e) Follow up examinations in 6 months and at one year and yearly thereafter, in the event of malignancy In the event of benign disease, the patient will be referred to the Radiotherapy Department for examinations and will be seen in the Follow-up Clinic after one year

D Colon Disease

1 PREOPERATIVE *a*) The usual diagnostic procedures should be followed These include barium enema, chest X-ray, and blood volume electrocardiogram and additional studies will be individualized

b) Low roughage diet will be started 6 to 7 days preoperative Simultaneously sulfathalidine (0 5 to 1 gm) is to be given 3 to 4 times daily

c) In the event that rapid preparation of the intestinal tract is needed neomycin (500 mg) is given every hour for 4 doses, then every 3 hours for 4 doses (from 8 A M to midnight) on the following day (0 25 gm) neomycin is given every six hours

d) Daily enema, using sulfasuxidine or sulfathalidine, should be administered A saline laxative may be prescribed, particularly before the start of oral antibiotics

e) The patient is weighed daily Added protein given orally is supplemented by parenteral feedings and blood transfusions, as directed

f) For right colon lesions, a long intestinal tube is started 36 hours preoperative under fluoroscopic guidance

g) Patients with diarrhea are to be treated with electrolytes first (oral Leytran for example), then with drugs

2 OPERATIVE The procedure is intended to eliminate malignancy and all adjacent intestine supplied by the vascular arcade within which the primary lesion occurs Cecostomy is done for

2 Laboratory Studies

a) Hemoglobin and hematocrit every 4 hours until hemoglobin is 12 gm % and hematocrit 36%, at least

b) Bromsulfalein

c) Prothrombin, bleeding and clotting times

d) Other indicated studies

3 Procedure

a) Blood transfused One unit (500 cc) per gram of hemoglobin under 11 gm % (caution in patients with impaired cardiac reserve)

b) Gastric suction, continuous

c) Measured intake-output record (special attention to urine volume and specific gravity)

d) Emergency E-S-D (esophagus, stomach and duodenum) X-ray—using Hampton "non-palpation' technic

e) Sengstagen tube, if indicated

f) Sigmoidoscopy unless contraindicated

4 Decisions (Medical-Surgical agreement)

a) Discontinue 3, above, when bleeding has ceased and other condition permits

b) Urgent surgery for relief

(1) Intestinal resection if bleeding is localized and has been identified (Polyp, if the cause of bleeding, may be removed)

(2) Subtotal gastric resection, with removal of ulcer, where possible (See Section M, Peptic Ulcer')

G Head and Neck Including Thyroid

1 Preoperative Observations *a*) *History* Pay particular attention to previous surgical procedures, trauma, infectious disease and cardiovascular, renal, and metabolic states

b) *Examination* Include details of neurological, ophthalmological, otorhinolaryngological, oral and dental findings, and in particular search for primary and secondary malignancies Record

type for blood for the operating room Electrocardiogram should be made If gall bladder is nonfunctioning on X-ray, an intravenous cholegrafin study should be done

3 OPERATIVE *a*) Every patient should be prepared for an operative cholangiogram

b) Liver biopsy may be taken with a needle early in the opera tive procedure

c) The operative procedure includes double ligation of the cystic pedicles The artery is ligated before the duct, if possible Clamps are not applied to the hepatic side

d) The liver bed should be closed with chromic catgut to obliterate the "dead space"

4 POSTOPERATIVE *a*) In the event of common-duct drainage, all bile collected daily is to be sent to the laboratory for the first two days, for bile G O T and S G O T determinations are drawn on these two days

b) In the uncomplicated common duct case common duct pressures should be determined on the fifth day If they are normal a cholangiogram is made on the sixth or seventh day provided that the patient can tolerate closure of the external limb of the drain for 12 to 24 hours The T drain may be removed after demonstration of normal pressures within the bile duct, normal post operative cholangiogram and normal clinical course with the T-drain closed

c) A saline cathartic may be given on the third or fourth day if appendectomy has not been performed Milk of magnesia is satisfactory for most patients Glycerine suppositories can be used (1 or 2 a day)

d) Follow up examination at six months

e) Refer to Sterling *The Biliary Tract*

F Gastrointestinal Bleeding

1 CLINICAL Medical Surgical Services co-operation from the time of hospital admission A history is taken and physical examinations made to establish diagnosis

(4) Select optimal time for surgery
   (i) Stabilized pulse rate (less than 90/minute)
   (ii) Stabilized or increased weight
   (iii) Consultation with Medical Department with reference to state of remission
   (iv) Antithyroid medication discontinued for at least one week
   (v) Iodine (Lugol s solution, 0 25 cc , b i d) for 3 to 7 days postoperative
(5) Vocal cords are to be examined and their function noted

3 POSTOPERATIVE MANAGEMENT

a) See Section II B 1*b*, above, for the usual postanesthetic management

b) *Special precautions*—
   (1) Bleeding Watch for hematomas, which can obstruct trachea These have to be evacuated promptly
   (2) The tracheotomy set must be available in the room on the same floor (If in doubt, *use it*)
   (3) Tetany Draw a blood sample for determination of serum calcium and phosphorus (it can be frozen overnight) and give 10% calcium gluconate IM or IV, as indicated Start vitamin D (1,000,000 to 3,000,000 units, 1 to 3 times daily, as indicated) Gauge therapy by urinary Sulkowitch reaction done (by the floor nurse) on every voided specimen
   (4) Examine and record findings concerning the vocal cords

c) *Fluids*—Discontinue parenteral routine and start oral feedings as soon as possible

d) *Drains and sutures*—
   (1) If dry, drains are removed after 24-36 hours
   (2) Sutures are removed starting the third postoperative day (One half on the third day and the rest on the fourth, if no abnormal collections exist) Aspirate under platysma if collection is present

daily weight Record at least one 24 hour interval of observation of the hourly pulse rate

c) Laboratory Routine studies include C B C, urinalysis blood sugar, urea nitrogen, and prothrombin time Additional studies (particularly in thyroid disease) include PBI (and non-PBI), urine concentration dilution PSP, serum calcium, phosphorus, cholesterol (and ester), proteins (and A G ratio), as indicated

d) Other observations—

(1) X-ray Department Studies for presence of substernal thyroid or bone metastases may be indicated For I-131 uptake and scintogram, ask for consultation with Radiology Department

(2) Cardiogram Usually indicated in thyrotoxicosis and may be made as indicated

(3) BMR If done take at least two observations

2 MANAGEMENT

a) Head and neck problems

(1) Maintain oral hygiene Use bacteriological tests as needed (smear, culture, cough plate, and sputum examination)

(2) Do not use antibiotics indiscriminately

(3) ENT and dental consultations are available

(4) Use node biopsy and endoscopic observations when they are indicated

b) Thyroid

(1) Specific antithyroid medication (propylthiouracil) is administered as needed

(2) Avoid narcotics and tranquilizers Use phenobarbital (gr ½-¼) with or without ascorbic acid (100 mgm) 3 or 4 times a day

(3) Add supplementary protein and high-caloric foods Parenteral therapy may be needed (In some cases determination of blood volume may be done)

I Infections

1 GENERAL PROPHYLAXIS *a*) Avoid unnecessary use of antibiotics

b) Select antibiotic on basis of sensitivity determined in the laboratory Recheck sensitivity when necessary

c) Wash hands and provide clean surroundings for the patient and for yourself before and after all examinations and redressings Use isolation technics and 'no touch' technic

d) Check "preparation' of operative area preoperatively

e) Maintain vigilance to avoid break in "contrasepsis "

f) Do "dirty dressings" at the end of the day

g) When in doubt, shower and change clothing

2 ACTIVE INFECTIONS (boils, abscesses, felons, cutaneous ulcers, including wound infections with or without lymphangitis and lymphadenitis)

a) Identify the organism and sensitivities to antibiotics

b) Elevate

c) Splint, using massive dressing (saturating it with saline at room temperature)

(1) Repeated dippings soaking, or direct applications
(2) Instillation of saline through catheters incorporated in the dressing (preferred)

d) If traumatic episode preceded infection, verify need for, and administration of, tetanus and gas gangrene antisera

3 SYSTEMIC STUDIES in such patients should exclude diabetes, tuberculosis, fungus infection, and degenerative disease X-rays of chest and infected portions should be done

4 SPECIFIC THERAPY *a*) Incision and drainage are done as soon as indicated Identification of organisms by smear and culture should be done at the time of incision and drainage

b) Following surgery, wet dressings as in above, 2*b* and 2*c* may be utilized

e) *Medications*—

(1) Sedations Do not depress the cough reflex

(2) IV sodium or potassium iodide may be needed, with 50% glucose followed by 10% invert sugar if storm" or ' crisis" supravenes

(3) Continue iodine (Lugol s solution, 0 25 cc, b i d) for 7 to 10 days, postoperative in hyperthyroid patients

f) *Follow up examination*—after 6 months

H Hernia

1 PREOPERATIVE Evaluate (*a*) upper respiratory tract for elimination of cough, (*b*) urinary tract for prevention of dysuria and (*c*) intestinal tract to eliminate constipation Intravenous urogram cholecystography, or gastrointestinal X-ray series may be indicated In the elective case, in the event of abnormal abdominal symptoms, consultation with the Gastrointestinal Service may be indicated

2 OPERATIVE *a*) The *sac is* to be *excised in the indirect* inguinal hernia The sac may be excised in recurrent, ventral or direct hernias, if feasible The sac will be plicated if it cannot be excised in these latter conditions

b) Transplant the closed sac under internal oblique The posterior wall of the *inguinal canal is repaired with interrupted* sutures of braided O wire Cooper s ligament will be used when it is available, provided that this will not interfere with the transversalis fascia closure

c) In the event of tension on the conjoined tendon, it is incised at the rectus sheath to permit its mobilization

3 POSTOPERATIVE The *patient* can *sit or stand within 12* hours and ambulate at 24 hours Walking stairs will be started at 2 or 3 days The patient may be discharged at four days Follow up examinations at 6 months

2 LABORATORY Complete blood count, including platelets, bleeding, and clotting times, should be checked on two occasions Blood urea nitrogen, blood sugar, prothrombin time, and serology should be on record Urine volume during a 24 hour period and urine specific gravity, with results of examinations of the sediment, should be known Urine is tested for urobilinogen Feces are tested for bile pigments

Liver profile should include serum proteins (A G ratio, electrophoretic patterns may be indicated), serum bilirubin, thymol turbidity, and the serum alkaline-phosphatase, S G O T and S G P T

When vomiting or diarrhea have been present, serum chlorides, CO_2, and sodium and potassium may be determined Bromsulphalein may be done if serum bilirubin is less than 2 mgm %, otherwise the hippuric acid conjugation test is used

3 INDIVIDUAL STUDIES Sigmoidoscopy should be performed on all patients Liver biopsy may be indicated Electrocardiogram, chest X-ray, intravenous urogram, cystoscopy, neurological evaluation cardiac study, radio-gold count (for hepatic blood flow), hepatic vein catheterization, or blood-volume determinations may be indicated

4 PERSONAL CONSULTATION with the anesthesiologist will be undertaken preoperatively

K Intestinal Obstruction

1 OBJECTIVES *a*) To correct disordered physiology consequent to the obstruction and its related intestinal distention

b) To replace fluid loss and electrolyte deficiencies which are noted during first examination of the patient

c) To maintain the patient in a normal state of hydration while definitive relief of the primary disease is accomplished, and thereafter as indicated

2 DIAGNOSIS *a*) Determine that an intestinal obstruction is

c) Inaugurate and utilize rehabilitation activities postoperatively

5 Contrasepsis *a*) Avoid wearing operating room shoes and other garments outside the hospital area, particularly out of the buildings Keep shoes clean

b) Scrub properly as follows (using Phisohex, Septisol, or soap) for ten minutes Orange stick to clean under nails Consider the forearm and hand as a four sided object and scrub five complete cycles on each side of (1) forearms, (2) hands, and (3) fingers Particularly scrub the fingertips and ulnar aspects of the hands

c) Keep hands high and away from the body and cover gloves with towel if "waiting "

d) Do not fail to rescrub in the event of a break in technic Change scrub suit if wet and if returning to operating-room suite Change masks every four hours, between cases

e) Do not hesitate to call attention to someone else's break in technic

Note Specific instructions are issued periodically by surgical chairman and the hospital administration

J Jaundice

Preoperative evaluation is divided into three phases clinical, laboratory, and specific individual requirements

1 Clinical Supplementing the complete gastrointestinal anamnesis should be questioning of cardiovascular state, including angina, coronary disease silent stroke and renal arteriosclerotic *and hypertensive factors Carcinoma of intestinal tract or* other area which can metastasize to the hepatic pedicle should be excluded History of weight loss and inadequacies of alimentation should be elicited Repeated abdominal examinations should be accomplished At least a "scout film" examination by X-ray should be made These should be supplemented by radiography to visualize the biliary tract and the duodenum

electrolyte consultant Fluid requirements are to be checked every 8 hours Minimum fluid requirements in a 70 kilo adult between 15 and 55 years of age are 2,000 cc of glucose in water and 1,000 cc of normal saline, plus additional normal saline to replace specific losses (See Section P, below)

4 SUMMARY Management of intestinal obstruction is not accomplished by writing instructions on a treatment sheet or by giving orders The responsibility of the surgical resident and the interns is to accomplish the studies and treatments and to attend these patients with care The long intestinal tube does not cure a patient with an intestinal obstruction

L Pediatrics

1 GENERAL *a*) The patient's weight, the 24-hour intake and output, and the usual level of activity are noted on the chart

b) Routine laboratory examinations include (1) two urinalyses, (2) CBC, and (3) bleeding and clotting times

c) The child's co-operation should be obtained

2 PARENTERAL ALIMENTATION *a*) Confer with consultant on water and electrolyte balance Usual fluid requirements are 30 cc to 35 cc per pound of body weight during 24 hours

b) Microchemistries to be done whenever possible

c) Use tube feedings, rectal instillations, hypoclyses, and bone marrow infusions as needed

d) Inspect excreta

3 MEDICATIONS *a*) Base on age and weight

Age of Child		*Fraction of Adult Dose*
1 month	=	1/20
6 months	=	1/10
1 year	=	1/6
3 years	=	1/5
4 years	=	1/4

present by careful history, physical findings and X ray observations Make repeated examination with particular reference to small obscure hernia sites (inner side of thigh, buttock, and interparietal or intraperitoneal)

b) Determine the presence or absence of peritoneal irritation localized tenderness abdominal rigidity, and rebound phenomena Peritoneal irritation indicates the presence of strangulation and urgent surgery is mandatory as soon as fluid losses and electrolyte imbalances have been corrected In some circumstances, a strangulated bowel which is confined in a hernial sac will not present the usual findings of peritoneal irritation Repeated leukocyte and differential counts, repeated examination of pulse rate, and other evidences of toxicity may be the only clinical evidences of strangulation In doubtful situations the patient is to have gastro intestinal intubation and parenteral fluid therapy, with re examination at frequent intervals

3 THERAPY *a*) In planning fluid and electrolyte therapy, it is important to remember that an average person can lose up to 6,000 cc of fluid before clinical dehydration can be detected The patient has obvious losses, such as those following vomiting and diarrhea, and additional hidden losses of fluid in distended loops of bowel or in the body cavities

b) Intestinal intubation is to be used only in patients who have a small bowel obstruction without evidence of strangulation or hernia The long intestinal tube is to be manipulated with fluoroscopic assistance and the tube must be advanced beyond the pylorus It is the responsibility of the surgeon, not the nurse or the radiologist, to see that this is accomplished

c) A large bowel obstruction is not treated with a long intestinal tube If decompression of the large bowel obstruction does not readily occur after the use of enemata and saline laxatives (under very close supervision), surgical decompression is indicated, if positive diagnosis has been made

d) The maintenance of parenteral alimentation and the management of fluid and electrolyte problems in these cases should be accomplished in constant consultation with the fluid and-

M Peptic Ulcer

1 PREOPERATIVE, UNCOMPLICATED (see Section II A, above)

a) Keep a daily weight record

b) Laboratory studies to include—

(1) Prothrombin time

(2) Urea nitrogen

(3) Bromsulphalein

(4) Blood volume (if indicated)

c) X-ray studies should demonstrate ulcer

d) Electrocardiograph is made when indicated

e) Gastric contents, patient not receiving any medication for preceding 6 hours, are to be aspirated (overnight, constant suction) for a 12-hour period This is to be examined for total acids and for chlorides Volume to be recorded "Pap" to be done in patients with gastric ulceration

2 PREOPERATIVE, COMPLICATED As in 1, above, and *a*) for *bleeding*, see Section III F, above

b) For *obstruction* nasogastric tube drainage to be attached to constant suction and patient managed to prevent electrolyte imbalance (See Sections K, above, and P, below)

3 OPERATIVE *a*) For *perforations*, a closure that utilizes "thru-and thru" 00 atraumatic silk, closure reinforced with omentum No drainage

b) For *benign ulcers* 50% distal gastrectomy with subdiaphragmatic vagotomies Restore continuity with antecolic gastrojejunostomy (antiperistaltic anastomosis at the greater curvature) Ulcer to be resected, if possible

c) For *malignant ulcer*, individualize

4 POSTOPERATIVE Refer to Section II B, above

a) Attach nasogastric tube to continuous suction Suction can be discontinued when flatus is passed and peristalsis is normal Remove tube when gastric retention is less than 15 cc per hour

b) Prevent electrolyte and blood deficiencies

c) After the seventh day, obtain the gastric contents for a

6 years	=	1/3
8 years	=	1/2
11 years	=	2/3
14 years	=	3/4

b) For preoperative selection of drugs, consult with anesthesiologist

c) Avoid (prophylactic) use of antibiotics

d) Determine allergies

4 SOME SPECIFIC SITUATIONS

a) *Herniorrhaphy*

(1) Ferguson repair in inguinal hernia Excise sac and transplant if needed Repair of canal usually not necessary

(2) Subcuticular suture of skin, followed by Aeroplast spray covered with Biosorb powder when spray is dry

(3) Discharge patient on second postoperative day, if there is no contraindication

b) *Pyloric stenosis*

(1) Preliminary scout films of abdomen to be made Barium study is not usually necessary

(2) Postoperative feedings as outlined in a standard text

c) *Anal atresia*

(1) Preliminary scout films to be made in lateral and inverted position, with marker on perineal body

(2) Consult with Proctology Department

d) *Acute abdomen*

(1) No delay in seeking consultations

(2) Repeated clinical examinations may be indicated

(3) Utilize radiology and laboratory as frequently as is necessary Do not forget to mark the location of the umbilicus with a coin when using radiography

bilateral superficial femoral vein ligations or *inferior caval ligations*, if indicated Pulmonary embolectomy is not impossible

(4) Massive occlusion Bed rest, elevate lower extremities, spinal anesthesia, then anticoagulants

c) *Post-phlebitic syndrome* (1) Bed rest, Bathroom privileges, compression bandages Venography to be done, individualize to determine if deep circulation is incompetent (venogram and clinical test with occlusive bandages)

(2) Surgical procedure Superficial femoral vein ligation, plus ligation of sapheno-femoral trunk and stripping of saphenous systems, sympathectomy

3 ARTERIAL DISEASE (Early consultation with service consultant is necessary)

a) *Trauma* Suture major vessels proximal to ankle or wrist, bridge defect larger than 1 cm with elastic Dacron Refer to Section O, "Trauma " below

b) *Vasospasm* No tobacco, local area dry and warm Administer arlidin or priscoline With presence of severe pain and imminent gangrene or recurrent ulceration, surgical procedure Sympathectomy using posterior or flank approaches

c) *Organic obstruction embolus or acute thrombosis* (1) Above knee Stat embolectomy or thromboendarterectomy unless extremity shows immediate collateral compensation Procedure Strip adventitia, flush through distal arteriotomy if clot persists

(2) Beyond 24 hours Individualize operative procedures or continuous sympathetic block anticoagulants and butazolidine, or both Angiography may be indicated

d) *Chronic occlusive disease* (1) Mild Avoid tobacco, use arlidin, etamon and trial of ganglionic blocking agents May use the oscillating bed

(2) Severe Angiography to localize site of block and to visualize run-off ' Procedure In aorta, replace with homograft other major vessels elastic Dacron bypass If poor run-off' sympathectomy may be indicated

(3) Avoid all bandages, abdominal pressure, and abnormal positions to prohibit 'pooling '

12-hour (overnight) period as in 1e of this section Volume, chlorides, and total acids are to be determined

d) X ray examination of stomach is made 2 weeks postoperative, or before discharge from hospital

N Peripheral Vascular Disease

1 General

a) *History* is to note trauma, infection, allergies, smoking, fatiguability, specific details of claudication

b) *Examinations* are to note pressures and pulsations in all extremities Make observations with oscillometer and skin temperature apparatus, and response to sympathetic block or drugs is noted

c) *Consultations* with Medical Department are indicated in all patients over 40 years of age Patients with chronic arterial occlusive disease and selected patients with venous insufficiency should have laboratory determination of blood sugar, blood urea nitrogen, serum cholesterol, and prothrombin time Additional studies, including X-rays, as indicated individually

2 Venous Disease

a) *Varicose veins* (1) Uncomplicated Mark the sites of perforating and incompetent veins preoperatively—in standing and recumbent positions Ligation at sapheno-femoral junction is to be supplemented by stripping of both greater and lesser saphenous systems These are supplemented by ligations of perforators

(2) Complicated Bed rest, supportive bandages, culture, and determine antibiotic sensitivities Time and extent of surgical procedure to be individualized

b) *Thrombophlebitis—phlebothrombosis* (1) Superficial Butazolidine, symptomatic treatment Supportive bandages used only if arterial supply is good

(2) Deep phlebitis Butazolidine, anticoagulants (start heparin and continue coumadin) for 2 months

(3) Associated pulmonary embolism Anticoagulant therapy—unless contraindicated or ineffectual Surgical intervention by

b) *Examine patient* Do not rely on X-ray examinations Skull X ray is not urgent

c) *Procedure for management of trauma* From the injured subject, or a reliable source, the following should be ascertained

(1) Time and circumstance of injury

(2) State of consciousness at time of and following injury

(3) Pre-existing disease or disability

(4) Previous treatment

d) *The following* are noted on the patient's record

(1) Age, development, and nutrition of the patient

(2) State of consciousness

(3) Respiratory and circulatory states

(4) Features pertaining to the character and extent of the specific injury Note external marks of violence

e) *Action*

(1) Immediate control of obvious hemorrhage

(2) Remove clothing (cutting off) with minimal disturbance Substitute blankets for removed garments

(3) Determine history and record

(4) Examine respiration and circulation

(5) Estimate general condition of the patient

(6) Examine individual body parts for specific injury

(7) Record physical examination (legibly)

(8) Transport for definitive treatment

2 OPEN WOUNDS (Applies only to those seen within 6 hours of injury, after 6 hours, wounds are not closed)

a) Shave area around the wound Cleanse area around wound with soap and water, then irrigate wound with saline or peroxide

b) Infiltrate margins of incisions with Xylocaine or Novocain

c) Remove fragments of dirt, foreign bodies, and excise devitalized portions of wound

d) Place interrupted absorbable sutures for layer closure to

e) *Aneurysms* (1) False Endaneurysmorrhaphy procedure first If unsuccessful, then excise and substitute elastic Dacron graft

(2) True Include angiogram Fusiform to be excised and replaced with elastic Dacron prosthesis Saccular to be repaired by lateral suture after excision, if possible

(3) Dissecting Individualize

f) *Combinations of arterial and venous disease* must be individualized Use oscillating bed and avoid pressure of bed clothing

O Trauma

1 GENERAL

a) First treat *asphyxia, shock* and *hemorrhage*

(1) Asphyxia

(*a*) Establish clear airway

(*b*) Establish tracheotomy when indicated

(2) Shock

(*a*) Do not wait for blood pressure to fall before instituting therapy

(*b*) Give narcotics to relieve pain Remember that absorption in patients with shock is delayed, if necessary, give small doses intravenously Do not give narcotics to patients who may have brain injury

(*c*) Keep the patient warm if he is cold, but do not overdo this

(*d*) Certain stimulants may be given intralingually or sublingually

(3) Hemorrhage

(*a*) Obtain crossmatch and transfuse blood early

(*b*) Use plasma expanders if needed Whole blood is the fluid needed in hemorrhagic shock

(*c*) Determinations of blood volume are repeated, examinations of the hemoglobin and hematocrit are important

(*d*) Stop hemorrhage

treatment), do not hesitate to perform thoracotomy Send for the defibrillator, establish airway

7 BURNS

a) Upon admission to the hospital, the patient should be assessed as to type and extent of burn (the rule of 9 should apply, 9% head and neck, 9%, each upper extremity, 18%, for each lower extremity, 18%, for anterior trunk, and 18%, for posterior trunk)

b) Morphine should not be given routinely

c) Under aseptic conditions, the burned area and beyond is gently cleansed using bland soap or Phisohex Obvious blebs, loose skin, and charred tissues are removed

d) The wound is covered with a single layer of sterile, fine-mesh, vaselinized (or non adherent) gauze dressing The entire area is then covered with voluminous dressings, using uniform compression

e) Burns of extremities are immobilized

f) Give tetanus antitoxin, or toxoid Antibiotics are not given routinely and are not used locally on the wound Penicillin is the drug of choice and is reserved for extensive or complicated burns or burns involving the face or the neck

g) Exposure treatment is used only by authorization from Chief of Service

h) Systemic reaction (burn shock) is expected in burns involving more than 20% of the body surface area In this there is a reduction of circulating blood volume (mostly plasma loss with some loss of red cell) The Evans formula may be utilized Percentage of body surface burned *times* the weight in kilograms *equals* the cc of plasma, plasma expanders, and/or blood needed in the first 24 hours A similar quantity of saline will also be needed

i) Practical management of burns is as follows

(1) Get into a vein, take a specimen for crossmatching start intravenous fluid plasma or plasma substitutes

(2) Determine hematocrit and repeat this within a few hours

(3) Place an indwelling catheter in the bladder and record

eliminate dead space Drain if in doubt, splint, if needed

e) Close wound snugly, but not tightly, with interrupted sutures of Nylon or wire

3 CHEST WOUNDS

a) These are to be closed by pressure dressings immediately The objectives for therapy are to—
   (1) Control bleeding
   (2) Resuscitate the patient
   (3) Clear the tracheobronchial tree
   (4) Stabilize the chest wall
   (5) Debride and clean the wound
   (6) Keep pleural space free of blood and air
   (7) Keep the lungs expanding properly

b) Open chest wounds, having been closed by first aid, are to be prepared for therapy in the operating room Do not use Trendelenberg position in the presence of respiratory embarrassment Flail chest and paradoxical respiration require special treatment, at once

4 CARDIAC TAMPONADE

Initial treatment is to place the patient in slight Trendelenberg position (except if dyspneic) and give narcotics Pericardiocentesis is to be performed through the left costoxiphoid route Preparations are to be made for surgery If aspiration of the pericardium is successful and there is no recurrence of the signs of tamponade conservative therapy may be continued When tamponade recurs rapidly, cardiorrhaphy is indicated

5 Hand face, tendon neurological eye, ear, nose, throat or urologic injuries to have departmental consultation First aid only!

6 CARDIAC ARREST

If this occurs spontaneously and from unexplained cause, thoracotomy for cardiac massage is *not* indicated If associated with anoxia, obstruction of the airway, or hemorrhagic shock (under

l) Perform surgery at optimum time In the event of multiple wounds, chest wounds should be repaired first (There are exceptions)

m) Record and measure urinary output

n) Patients in shock, with severe lacerations or with open fractures, should be given large doses of penicillin Don't forget the tetanus and gas bacillus prophylaxis

P Water (Fluid and Electrolyte) Balance

1 DEFICITS The following groups of patients most frequently develop deficits of fluids and electrolytes

a) Cardiac disease
b) Peritonitis
c) Intestinal fistula, ileostomy, prolonged diarrhea
d) Gastrointestinal intubation for prolonged period, with such indication as obstruction of the intestinal tract or paralytic ileus

2 OVERHYDRATION Special attention is needed to protect against overhydration in patients with cardiac disease, to manage oliguria associated with renal shutdown or renal insufficiency

3 MANAGEMENT Patients in these categories (1 and 2, above) are to have urgent consultation The objective of management is to maintain fluid and electrolyte balance at all times and not to have to restore balance when deficits or excesses are manifest A bedside box is used to keep all bottles after intravenous therapy This also includes wide-mouthed jars for excreta Chloride (and other electrolytes) are measured each morning for the preceding 24 hours, and the fluid electrolyte chart is completed prior to 8 A M

4 PARENTERAL ALIMENTATION (measurable and insensible)
a) All loss is to be replaced completely, and provision to be made for additional normal requirements There are no routine fluid orders in patients with abnormal losses These are individualized

hourly urine flow Have the residual urine specimen sent for routine urinalysis (The objective of therapy is to maintain urine output of 30 cc per hour)

(4) The patient can take 200 cc of fluid per hour, including salt, bicarbonate of soda sugar, and proteins The quantity taken orally is subtracted from that estimated as total fluid requirement It should be emphasized that estimated urinary output is modified in the extremes of age and by the weight of the patient

8 Traumatic Shock

Individualize the following *a*) Note pulse rate and volume, respiration, color of skin and mucous membranes, to determine the blood pressure Repeat these observations

b) Remove all clothing by cutting If the patient must be moved from a litter, place blankets over and under the patient

c) Make a careful, rapid and complete physical examination to determine the extent and nature of wounds and injuries

d) Examine wounds to determine that bleeding has been controlled

e) Chest wounds are to be occluded properly and promptly

f) Make sure the airway is clear

g) Start intravenous therapy If pressure is o/o you can give 500 cc to 1 000 cc of O Rh negative blood without crossmatching Cut down on a vein immediately If shock is not severe, use electrolyte solution or plasma expander while waiting for matched blood 500 cc of blood can be given in 5 minutes, or 1,000 cc in 10 minutes, if needed When systolic blood pressure is 85 mm of mercury, transfusion can be stopped although vein is kept open

h) Oxygen therapy is started promptly when hypotension exists

i) Relieve pain by Novocain or administer narcotics intravenously if needed

j) Aspirate hemothorax and pneumothorax Aspirate hemopericardium

k) Pass nasogastric tube, particularly in patients who are going to be anesthetized

b) Gastrointestinal losses are replaced volume for volume with normal saline Estimated perspiration loss is replaced with half normal saline Other insensible losses and urine volume are to be replaced with 5% glucose in water

c) Patients are weighed daily when there is any problem of electrolyte balance or nutrition Record weight on temperature chart

d) The objective of therapy is to maintain normal compart mentation of proteins, fluids, and electrolytes and to provide fluid necessary for normal excretory function

5 LABORATORY EVALUATION *a*) The easiest compartment to measure is the intravascular one

b) In the absence of renal disease, the measurement of urine volume and specific gravity, as well as of urine chlorides, can be accurate guides to the progress of therapy

c) Clinical impression' is unreliable in determining that adequate treatment has been given Levels of serum electrolytes are to be measured periodically to evaluate programs of therapy An abnormal serum level is prima facie evidence of inadequate management

6 SUMMARY OF PRINCIPLES *a*) Simple electrolyte solutions are used The electrolyte contents of fluids is indicated on the progress chart

b) Oral alimentation is more valuable than parenteral feedings, the objective in therapy is to restore oral alimentation

c) Prevent deficiencies

IV Miscellany

A *Admissions*

1 The intern should see each admission immediately upon the patient's arrival in any designated area of the hospital Upon completion of history and physical examination, the intern will contact the surgical resident, who, in turn, will review the case with him

2 It is expected that the intern and resident will reach a diagnostic impression and will have outlined studies and proposed therapy before notification of the ward surgeon

3 In the event that the intern or the resident or the members of the house staff who are answering calls for them are not immediately available, because of urgent or emergency circumstances, the ward surgeon will be notified that this situation exists

4 The ward surgeon will be notified by the resident (or intern) of the following

- *a*) New admissions
- *b*) Any unexpected changes in condition or any unusual changes shown by patients
- *c*) Desires of patients' families to see the attending staff
- *d*) General progress of patients or technical problems in administration of procedures
- *e*) Operating schedules
- *f*) Deaths

5 The surgical resident assigned to the service is responsible for the general conduct of the service, including the care and comfort of patients, the prompt and courteous attention to patients and their families completion of records and histories, regardless of whether these duties are delegated to an intern He is

2 SURGICAL CLINICS
Monday Dr H
Wednesday Dr F
Friday Dr J

3 FOLLOW UP CLINIC
Dr C
Dr F

4 CONSULTANTS
Dr H Water and Electrolyte Balance
Dr B Pediatrics
Dr C Peripheral Vascular Disease
Dr D Breast Tumors
Dr E Thyroid, Head and Neck Lesions
Dr F Infections
Dr G Peptic ulcer

5 JOURNAL CLUB Third Thursday, 8 P M

Month	*Meeting Place*	*Assigned Journals*
September	Dr G	*Surgery*
October	Dr K	*Am J Surgery*
November	Dr L	*J.I C.S*
December	Dr E	*S C.N.A*
January	Dr M	*Brit J Surg*
February	Dr H	*J A.M.A*
March	Dr J	*Pa Med J*
April	Dr C	*Arch Surgery*
May	Dr A	*Ann Surg*
June	Dr D	*S G & O*
July	Dr B	*N E.J.M*

D *Education and Training Program*

1 Conference and 'grand rounds' each Saturday morning at 8 30 A M

also responsible for the completion of parenteral therapies, intubations, and instructions to interns and others concerning passage of tubes, completion of examinations, and management of the patients

B *Rounds*

1 "Grand rounds" are made by the Chief of Service and associates once a week Daily rounds are made by the associate assigned in charge of ward service

2 The intern has the following duties during rounds

a) To present to the staff the historical and clinical features of his patients
b) To inform the staff of the results of investigative or diagnostic procedures previously ordered
c) To inform the staff of new events in the clinical progress of the patient the operative findings and procedures, and the postoperative course
d) To record upon the chart the opinion of the staff as expressed by the Chief of Service or a designated associate concerning each patient
e) To record and to complete therapeutic or investigative procedures suggested by the Chief of Service or his designated associate

3 The intern should make his daily rounds prior to reporting to the operating room Rounds during the day may be made as indicated The intern on duty should make short rounds upon completion of visiting hours about 8 30 in the evening and devote particular attention to rechecking critically ill patients and attending to the general comfort of all patients It is suggested that orders not be written repeatedly and not be changed constantly Co-operation with the nursing staff is imperative

C *Attending staff Assignments*

	Mo No	8/12/4	9/1/5	10/2/6	11/3/7
1	Ward Surgeon	Dr B	Dr A	Dr F	Dr E
	Second Call	Dr A	Dr B	Dr C	Dr C

January
- *Thyroidectomy*
- *Parotidectomy*
- Clinical case presentation (breast tumors)
- Mortality Conference

February
- *Parathyroid Tumors*
- *Adrenal Tumors*
- Clinical case presentation (surgery for hypertension)
- Mortality Conference

March
- *Neck Dissection*
- *Portocaval Shunt*
- Clinical case presentation (surgery of the spleen)
- Mortality Conference
- Interns' and residents' papers

April
- *Bronchopulmonary Segments*
- *Pulmonary Surgery*
- Clinical case presentation (empyema)
- Mortality Conference

May
- *Resection of the Esophagus*
- *Colon Resection*
- Clinical case presentation (colostomy)
- Mortality Conference

June
- *Pediatric Surgery*
- *Advances in Surgery* (1)
- *Advances in Surgery* (2)
- Mortality Conference

2 Surgical Department seminars and conferences weekly, each Thursday afternoon at 3 30 P M

3 Motion-picture presentations in the auditorium of the Clinical case presentations and mortality conferences (A typical year's program of weekly meetings follows)

July

Indoctrination
Bedside Management of Fluids and Electrolytes
Mortality Conference
Cardiac Arrest

August

Clinical Shock
Debridement
Clinical case presentation (appendicitis)
Mortality Conference

September

Inguinal Hernia
Ulcerative Colitis
Clinical case presentation (intestinal obstruction)
Mortality Conference

October

Plastic Surgery
Intestinal Anomalies
Subtotal Gastrectomy
Mortality Conference
Clinical case presentation (gastrointestinal bleeding)

November

Jaundice
Surgery in the Aged
Clinical case presentation (cholecystitis)
Mortality Conference

December

Aortic Resection
Amputations
Clinical case presentation (peripheral vascular disease)
Mortality Conference

3 Blood—Chemical

Albumen 4 ± 0.2 gm%
Amino acid nitrogen 0.7 ± 0.1 mgm%
Ammonia nitrogen 35 ± 20 mcg%
Amylase Somogyi up to 200 units
Ascorbic acid 0.5 ± 0.3 mgm%
Bilirubin, total 0.3 ± 0.2 mgm%
direct 0
indirect 0.3 ± 0.2 mgm%
Bromsulphalein <4% (45 min)
Calcium, total 10 ± 1 mgm% (5 ± 0.5 mEq/L)
ionized 5 ± 1 mgm% (3 ± 0.5 mEq/L)
Carbon dioxide combining power 65 ± 10 vols% (30 ± 5 mEq/L)
Cephalin flocculation 0 units
Chlorides (NaCl) 580 ± 30 mgm% (100 ± 5 mEq/L)
Cholesterol 200 ± 30 mgm%
Cholesterol esters 65 ± 5% of cholesterol
Creatinine 2 ± 0.5 mgm%
Electrophoretic pattern,

albumen	60% ± 5%
alpha 1 globulin	4% ± 2%
alpha 2 globulin	9% ± 2%
beta globulin	12% ± 2%
gamma globulin	16% ± 2%

Fibrinogen 0.3 ± 0.1 gm%
Globulin 3.5 ± 0.2 gm%
Glucose 105 ± 15 mgm
Glucose tolerance, following 100 gm orally
a) Maximal rise in 90 min to 200 mgm%
b) Return to normal after 120 min
c) Subnormal after 180 min
Iodine protein bound 5 ± 1.5 mcg%
non protein-bound 1 mcg%
Iron, unbound binding capacity 230 ± 50 mcg%
total binding capacity 330 ± 50 mcg%

E Laboratory Values

1 Urine

Albumen <30 mgm/24 hr
Calcium 0.2 ± 0.1 gm/24 hr
Catecholamine Depends on laboratory (chemical and biological)
Chlorides (NaCl) 10 ± 5 gm/24 hr
Estrogens, male 12 ± 8 mouse units/24 hr
female 50 ± 50 mouse units/24 hr
child 0.6 mouse units/24 hr
GFR (inulin, glomerular filtration rate,) 120 ± 15 cc/min
17-Ketosteroids, male 17 ± 5 mgm/24 hr
female 9 ± 5 mgm/24 hr
child 5 ± 4 mgm/24 hr
Oxysteroids adult 0.75 ± 0.25 mgm/24 hr
child 0.45 ± 0.15 mgm/24 hr
Phosphate 3 ± 0.5 gm/24 hr
Protein (total) <0.5 gm/24 hr
RPF (diodrast, renal plasma flow) 600 ± 100 cc/min
Serotonin 4 ± 2 mgm/24 hr
Urea 30 ± 5 gm/24 hr
Uric acid 0.5 ± 0.5 gm/24 hr

2 Blood—Physical

Bleeding time (Duke) 1-3 min
Circulation time, arm lung 6 ± 2 sec
arm-tongue 12 ± 2 sec
Clot retraction 30-75 min
Coagulation time, capillary blood 4- 7 min
Lee & White 6-15 min
Oxygen capacity male 20 vols%
female 19 vols%
Volume
plasma 45 ± 5 cc/Kg,
red cell mass 30 ± 5 cc/Kg,
total 75 ± 10 cc/Kg

Lactic acid hydrogenase 400 ± 200 units/ml
Lipase 1 ± 0.5 units
Non-protein nitrogen 30 ± 5 mgm%
pH 7.4 ± 0.05
Phosphatase, acid Up to 1 unit (Bodansky), 1.5 ± 1 unit (Gutman)
Phosphatase, alkaline 3 ± 1 unit (Bodansky)
Phosphorus, inorganic 4 ± 0.5 mgm%
Potassium 17 ± 2 mgm% (4 ± 0.5 mEq/L)
Proteins 7 ± 0.5 gm%
S.G.O.T. (glutamic oxalacetic transaminase) 25 ± 15 units
S.G.P.T. (glutamic pyruvic transaminase) 20 ± 15 units
Sodium 335 ± 15 mgm% (145 ± 5 mEq/L)
Thymol turbidity 0 units
Urea nitrogen 15 ± 5 mgm%
Uric acid, blood 3 ± 0.5 mgm%
serum 4 ± 1 mgm%

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